Title (en)

Semiconductor device using holes as charge carriers.

Title (de)

Halbleiterbauelement mit Löchern als Ladungsträger.

Title (fr)

Dispositif semi-conducteur utilisant des trous comme porteurs de charge.

Publication

EP 0202383 A1 19861126 (EN)

Application

EP 85308997 A 19851211

Priority

US 72654385 A 19850424

Abstract (en)

Holes are the charge carriers along a conduction channel in an epitaxial layer (28) of semiconductor material (eg GaSb) formed on a supporting layer (26) of semiconductor material (eg AlSb) which has a lower valance-band energy than that of the material of the epitaxial layer. The material of the epitaxial layer (28) has a lattice spacing when unstrained which is different from the lattice spacing of the material of the supporting layer (26) which is rigid enough to strain the lattice of the material of the epitaxial layer. The material of the epitaxial layer is such that mobile holes are provided in its conduction channel due to the strain put on its lattice by the supporting layer. A further layer (20) of semiconductor material (eg AlSb) contiguous with the epitaxial layer (28) is doped to induce the conduction channel in the epitaxial layer and to provide modulation doping.

IPC 1-7

H01L 29/32; H01L 29/36; H01L 29/205; H01L 29/80

IPC 8 full level

H01L 29/812 (2006.01); **H01L 21/20** (2006.01); **H01L 21/338** (2006.01); **H01L 29/205** (2006.01); **H01L 29/43** (2006.01); **H01L 29/778** (2006.01); **H01L 29/78** (2006.01); **H01L 29/80** (2006.01)

CPC (source: EP US)

H01L 29/205 (2013.01 - EP US); **H01L 29/432** (2013.01 - EP US); **H01L 29/7783** (2013.01 - EP US)

Citation (search report)

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Designated contracting state (EPC)

DE FR GB IT

DOCDB simple family (publication)

EP 0202383 A1 19861126; CA 1236590 A 19880510; JP H0237115 B2 19900822; JP S61248480 A 19861105; US 4665415 A 19870512

DOCDB simple family (application)

EP 85308997 A 19851211; CA 501112 A 19860205; JP 28321085 A 19851218; US 72654385 A 19850424